

# Women will do it in the long run

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## In long distance races female runners can beat male runners

Will female athletes ever outpace male athletes in running events? Time and again this question has caused the most ambitious debates with considerable recognition in the "lay" and sports science society.<sup>2-5</sup> Although serious consideration does not indicate the slightest chance of a woman being the fastest human on the planet at distances of 100–200 m, there are factors that may favour women over longer distances.

It is not only the rapid improvement in female running, especially over the marathon distance, between 1963 and 1984 that supports the idea that women may have a chance of outpacing men. Further support comes from findings such as differences in the ability to run aerobically at a higher percentage of maximal oxygen uptake,<sup>6</sup> the use of ingested and stored glycogen,<sup>6</sup> lipid metabolism,<sup>7</sup> and possibly the acute response of growth hormones,<sup>8</sup> in the balance between gene transcription, translation, protein breakdown,<sup>9</sup> resistance to oxidative stress,<sup>10</sup> and also pain perception.<sup>11</sup> However, men have always been faster over Olympic distances, and further analyses support the idea that the sex difference of about 10% in races up to 200 km has more or less plateaued.<sup>12</sup>

Regardless of whether such analyses provide meaningful clues and whether female athletes will be able to close on male athletes in races up to 200 km, consistent male superiority is already a matter of history in possibly the most challenging ultra-race, the "Badwater Ultramarathon", a 216 km race at temperatures of up to 55°C. Men dominated during the 1980s and 1990s, but, in spite of potential female handicaps in an extremely hot environment,<sup>13</sup> in 2002 and 2003, a female ultra-runner outpaced the fastest man by about 4.5 and 0.5 hours respectively. Furthermore, since 2002, up to three women have been in the first five finishers, even though there were more male than female participants. Whether 216 km is long enough for women to consistently outpace men may be seen in the near future.

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